

REMARKS

In the Office Action, the Examiner rejected claims 1-23. By this paper, the Applicants hereby cancel claims 2 and 22, add new claim 24, and amend claims 1, 9, 15, 18 and 23 for clarification of certain features to expedite allowance of the present application. These amendments do not add any new matter. Upon entry of these amendments, claims 1, 3-21, 23-24 remain pending in the present application and are believed to be in condition for allowance. In view of the foregoing amendments and the following remarks, the Applicants respectfully request reconsideration and allowance of all pending claims.

Claim Rejections under 35 U.S.C. § 102

In the Office Action, the Examiner rejected claims 1-3, 5, 18 and 20 under 35 U.S.C. § 102(b) as anticipated by West et al. (U.S. Patent No. 6,500,119, hereinafter, “West”). The Examiner also rejected claims 1-3, 5, 7, 18, 20-21 under 35 U.S.C. § 102(b) as anticipated by Hiruta et al. (U.S. Patent No. 5,718,228, hereinafter, “Hiruta”). The Examiner rejected claims 9, 13-14, 18-19 and 22-23 under 35 U.S.C. § 102(b) as anticipated by Emery et al. (U.S. Patent No. 6,610,011, hereinafter, “Emery”). The Examiner also rejected claims 15, 18, 22 and 23 under 35 U.S.C. § 102(b) as anticipated by Shirasaka et al. (U.S. Patent No. 4,945,767, hereinafter, “Shirasaka”). Applicants respectfully traverse this rejection.

Claim 1 recites that the control system is configured to control power modes of the ultrasound probe based on feedback from the physical sensor. Similarly, claim 18 recites providing a control system to change power levels of the ultrasound unit based on the feedback from the physical sensor. Claim 9 recites physically sensing engagement of an ultrasound module using a non-ultrasonic sensor. Claim 15 recites a non-ultrasonic sensing element configured to detect physical proximity of the hand holdable ultrasound

probe relative to the subject. Claim 23 recites means for switching power modes of the ultrasound probe based on proximity feedback.

West fails to disclose a control system configured to control power modes of the ultrasound probe.

West does not teach, suggest or disclose “a control system coupled to the ultrasound probe and configured to control power modes of the ultrasound probe based on feedback from the physical sensor” or “providing a control system to change power levels of the ultrasound unit based on the feedback from the physical sensor,” as recited in independent claims 1 and 18, respectively. West merely disclose using a pressure sensor along with the imaging sensors to determine the orientation of the sensors in subsequent examinations. The pressure sensor in West is used to produce a signal that is indicative of an amount of pressure between the pressure sensor and the bodily tissue. A processor analyzes signals from the pressure sensors to determine the orientation of the pressure sensors. *See* West, column 1, lines 60-67. Nowhere does West teach, suggest or disclose using a control system configured to control power modes of the ultrasound probe based on feedback from the physical sensor.

Since, West fails to disclose a control system configured to control power modes of the ultrasound probe based on feedback from the physical sensor, the reference cannot support a *prima facie* case of anticipation of claims 1 and 18. Accordingly, Applicants respectfully submit that independent claims 1 and 18 and claims depending therefrom are allowable and respectfully request the Examiner to withdraw the rejection of claims 1-3, 5, 18, and 20 in view of West.

Hiruta fails to disclose a control system configured to control power modes of the ultrasound probe.

Hiruta does not teach, suggest or disclose “a control system coupled to the ultrasound probe and configured to control power modes of the ultrasound probe based on feedback from the physical sensor” or “providing a control system to change power levels of the ultrasound unit based on the feedback from the physical sensor,” as recited in independent claim 1 and 18, respectively. Hiruta merely discloses an ultrasound diagnostic apparatus configured to switch the display unit to a freeze mode if a non-contact state is detected. *See* Hiruta, column 5, lines 36-55. Nowhere does Hiruta teach, suggest or disclose a control system configured to control power modes of the ultrasound probe based on feedback from the physical sensor.

Since, Hiruta fails to disclose a control system configured to control power modes of the ultrasound probe based on feedback from the physical sensor, the reference cannot support a *prima facie* case of anticipation of claims 1 and 18. Accordingly, Applicants respectfully submit that independent claims 1 and 18 and claims depending therefrom are allowable and respectfully request the Examiner to withdraw the rejection of claims 1-3, 5, 7, 18, 20, and 21 in view of Hiruta.

Emery fails to disclose a non-ultrasonic sensor for sensing engagement.

Emery does not teach, suggest or disclose “physically sensing engagement of an ultrasound module with a subject using a non-ultrasonic sensor,” or “a physical sensor to non-ultrasonically detect proximity of a subject relative to the ultrasound unit,” or “means for sensing non-ultrasonic signals to detect proximity of an ultrasound module relative to a subject to be scanned by ultrasonic transducers of the ultrasound module,” as recited in independent claims 9, 18 and 23, respectively. In sharp contrast, Emery discloses analysis of only the ultrasonic transducer signals, rather than a non-ultrasonic signal. *See*

Emery, column 4, lines 44-67; column 5, lines 1-40. Nowhere does Emery teach, suggest or disclose using a non-ultrasonic sensor for detecting engagement.

Applicants respectfully note that claim 23, which was rejected under 35 U.S.C. § 102(b) in view of the cited reference, includes means-plus-function language, as set forth in 35 U.S.C. § 112, paragraph 6, *and should be examined in accordance with this body of law*. As may be appreciated, with respect to 35 U.S.C. § 112, paragraph 6, an Examiner “may not disregard the structure disclosed in the specification corresponding to such language when rendering a patentability determination.” *In re Donaldson Co.*, 29 U.S.P.Q.2d 1845 (Fed. Cir. 1994); *see also* Manual of Patent Examining Procedure § 2181. Applicants note that proper interpretation of this claim must be performed with reference to the structure provided in the specification. Particularly, with regard to the “means for sensing non-ultrasonic signals to detect proximity of an ultrasound module relative to the subject to be scanned by ultrasonic transducers of the ultrasound module” recitation of claim 23, Applicants’ specification discloses a physical sensor (e.g., temperature, pressure, distance, or other physical characteristics) for performing the recited function. *See, e.g.*, Application, paragraph [0015]; FIG. 1. The cited reference fails to teach or suggest the foregoing structure or equivalents. Moreover, the Office Action failed to establish a *prima facie* case of unpatentability *in accordance with* the relevant statutory and precedential authority outlined above. Consequently, Applicants respectfully submit that independent claim 23 is patentable over the cited reference.

Since, Emery fails to disclose a non-ultrasonic sensor for detecting engagement, the reference cannot support a *prima facie* case of anticipation of claims 1, 18 and 23. Accordingly, Applicants respectfully submit that independent claims 1, 18 and 23 and the claims depending therefrom are allowable and respectfully request the Examiner to withdraw the rejection of claims 9, 13, 14, 18, 19, 22, and 23 in view of Emery.

Shirasaka fails to disclose a non-ultrasonic sensor for sensing engagement.

Shirasaka does not teach, suggest or disclose “a non-ultrasonic sensing element configured to detect physical proximity of the hand holdable ultrasound probe relative to the subject,” or “a physical sensor to non-ultrasonically detect proximity of a subject relative to the ultrasound unit,” or “means for sensing non-ultrasonic signals to detect proximity of an ultrasound module relative to a subject to be scanned by ultrasonic transducers of the ultrasound module,” as recited in independent claims 15, 18 and 23, respectively. Shirasaka instead discloses sensing whether the entire probe is coupled into air or tissue by using the transducers themselves. *See* Shirasaka, column 2, lines 53-68; column 4, lines 47-60. Clearly, Shirasaka does not use a a non-ultrasonic sensor to detect engagement.

Since, Shirasaka fails to disclose a non-ultrasonic sensor for detecting engagement, the reference cannot support a *prima facie* case of anticipation of claims 15, 18 and 23. Accordingly, Applicants respectfully submit that independent claims 15, 18 and 23 and the claims depending therefrom are allowable and respectfully request the Examiner to withdraw the rejection of claims 15, 18, 22, and 23 in view of Shirasaka.

Claim Rejections under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 4, 6 and 19 under 35 U.S.C. § 103(a) as unpatentable over Hiruta or West, further in view of Burke et al. (U.S. Patent No. 5,517,994). The Examiner also rejected claim 8 under 35 U.S.C. § 103(a) as unpatentable over Hiruta or West, further in view of Whitney et al. (U.S. Patent No. 5,396,891). The Examiner rejected claim 10 under 35 U.S.C. § 103(a) as unpatentable over Emery in view of Miele et al. (U.S. Patent No. 5,654,409). Claim 11 was rejected under 35 U.S.C. § 103(a) as unpatentable over Emery in view of Hiruta or West or Whitney. Claims 12 and 20-21 were rejected under 35 U.S.C. § 103(a) as unpatentable over Emery in view of Hiruta. Claim 16 was rejected under 35 U.S.C. § 103(a) as

unpatentable over Shirasaka or Miele, further in view of Hiruta, or West, or Whitney. Claim 17 was rejected under 35 U.S.C. § 103(a) as unpatentable over Shirasaka or Miele and further in view of Hiruta.

The claims rejected under this section depend directly or indirectly from independent claims 1, 9, 15 and 18. The cited references, taken alone or in hypothetical combination, are not believed to teach or suggest each and every element of independent claims 1, 9, 15 and 18. Consequently, claims 4, 6, 8, 10, 11, 12, 16, 17, 19 and 20-21 are believed to be patentable both by virtue of their dependency from allowable base claims, as well as for the subject matter they separately recite. Reconsideration and allowance of dependent claim 4, 6, 8, 10, 11, 12, 16, 17, 19 and 20-21 on this basis are requested.

References Teach Away From One Another

The Applicants stress that the cited references teach away from one another and, therefore, are not properly combinable. In fact, the cited references teach contrastingly different intended purposes and principles of operation, which would change if the cited references were combined as suggested by the Examiner.

It is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 U.S.P.Q. 769, 779 (Fed. Cir. 1983); M.P.E.P. § 2145. Moreover, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 U.S.P.Q. 349 (CCPA 1959); *see* M.P.E.P. § 2143.01(VI). If the proposed modification or combination would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); *see* M.P.E.P. § 2143.01(V).

Emery and Shirasaka both teach a principle of operation of an ultrasound system that detects engagement of a probe with a tissue using ultrasonic transducers. The ultrasound systems described by Emery and Shirasaka will not be able to detect non-ultrasonic signals such as pressure signals and temperature signals. Thus, it would be improper to combine these references with other references using *non-ultrasonic* sensors. Moreover, it would be improper to modify these references to use anything other than the ultrasonic transducers to detect engagement, as specifically described in the respective references.

New Claim

As noted above, the Applicants added new dependent claims 24. This claim depends from independent claim 1 and is believed to be in condition for allowance.

Conclusion

The Applicants respectfully submit that all pending claims should be in condition for allowance. However, if the Examiner believes certain amendments are necessary to clarify the present claims or if the Examiner wishes to resolve any other issues by way of a telephone conference, the Examiner is kindly invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,

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